

REMARKS/ARGUMENTS

The present Amendment is in response to the Office Action having a mailing date of September 9, 2004. Claims 1-27 are pending in the present Application. Applicant has amended claims 1, 3, 4, 8, 9, 18, 19, 21, 22, 26, and 27. Applicant has also canceled claims 2, 10, and 20. Consequently, claims 1, 3-9, 11-19, and 21-27 remain pending in the present Application.

Applicant has amended claims 1, 9, 18, 19, and 27 to recite that the filter rules are divided into groups based on their priorities, with all of the filter rules in a group having the same priority. Support for the amendment can be found in the specification, page 9, lines 12-13. Applicant has also amended claim 18 to replace the “plurality of processors” with the “at least one network processor” that has already been recited. Applicant has also amended claims 1, 3, 4, 8, 19, 21, 22, 26, and 27 to remove the alphanumeric designation of particular steps. Consequently, Applicant respectfully submits that no new matter is added.

In the above-identified Office Action, the Examiner rejected claims 18 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner also rejected claims 1-5, 7-13, 15-16, 19-23, and 25-26 under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 6,606,710 (Krishnan). The Examiner also rejected claims 6, 14, and 24 under 35 U.S.C. § 103 as being unpatentable over Krishnan in view of an Official Notice. The Examiner rejected claim 17 under 35 U.S.C. § 103 as being unpatentable over Krishnan in view of U.S. Patent No. 6,173,364 (Zenchelsky). The Examiner also rejected claim 18 under 35 U.S.C. § 103 as being unpatentable over Krishnan in view of U.S. Patent No. 5,951,651 (Lakshman).

In the above-identified Office Action, the Examiner rejected claims 18 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim

the subject matter which applicant regards as the invention. In particular, the Examiner noted that the term “the plurality of processors” lacked proper antecedent basis. Applicant has amended claim 18 to replace the term “plurality of processors” with “at least one network processor”, which has proper antecedent basis. Consequently, Applicant respectfully submits that claim 18 is clear and definite.

The Examiner also rejected claims 1-5, 7-13, 15-16, 19-23, and 25-27 under 35 U.S.C. § 102 as being anticipated by Krishnan.

Applicant respectfully traverses the Examiner’s rejection. Claim 1 recites a method for determining whether to enforce a plurality of filter rules for a packet including a key in a computer network. Each of the filter rules has a priority. The method recited in claim 1 includes dividing the plurality of filter rules into at least one group based on the filter rules priority. Each of the of filter rules in each group has a priority that is equal. The method and system further include accumulating statistics for each of the plurality of filter rules. The statistics indicating a frequency of enforcement for each of the plurality of filter rules. The method recited in claim 1 further includes placing the filter rules in an order in each group for testing against the key. The order is based on the frequency of each filter rule of the plurality of filter rules. Independent claims 9, 10, and 27 recite analogous systems, computer-readable media. Using the method, systems, and computer readable medium recited in claims 1, 9, 19, and 27, testing of filter rules can be made more efficient. Specification, page 10, lines 14-16.

Krishnan fails to teach or suggest the recited method, system, and computer-readable medium, which divide the filter rules into groups having the same priority, then utilize the frequency of enforcement of each filter rule in a group in order to order, or rank, the filter rules from first to last to be tested against a key. Krishnan does describes a system which does re-order

filter rules based upon the number of times particular filter rules matched incoming packets. Furthermore, Krishnan does associate filter rules with priorities in the sense that the filter rules are enforced in a given sequence. However, Applicant can find no mention in Krishnan of dividing the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority. Further, Applicant can find no mention in Krishnan of analyzing the filter rules in groups separately and reordering the filter rules in each group based upon the number of times the filter rules are enforced. Consequently, Krishnan fails to teach or suggest the method, system, and computer-readable medium recited in independent claims 1, 9, 19, and 27. Accordingly, Applicant respectfully submits that claim 1, 9, 19, and 27 are allowable over the cited references.

Claims 3-5 and 7-8 depend upon claim 1. Claims 11-13 and 15-16 depend upon independent claim 8. Claims 20-23 and 25-26 depend upon independent claim 19. Consequently, the arguments herein apply with full force to claims 3-5, 7-8, 11-13, 15-16, 20-23, and 25-26. Accordingly, Applicant respectfully submits that claims 3-5, 7-8, 11-13, 15-16, 20-23, and 25-26 are allowable over the cited references.

The Examiner also rejected claims 6, 14, and 24 under 35 U.S.C. § 103 as being unpatentable over Krishnan in view of an Official Notice. In so doing, the Examiner took Official Notice that it is well known in the art to decrease the intervals between reordering.

Applicant respectfully traverses the Examiner's rejection. Claims 6, 14, and 24 depend upon independent claims 1, 9, and 19, respectively. Consequently, the arguments herein with respect to Krishnan apply with full force to claims 6, 14, and 24. In particular, Krishnan fails to teach or suggest dividing the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority. Further, Krishnan fails to teach or suggest analyzing the filter

rules in groups separately and reordering the filter rules in each group based upon the number of times the filter rules are enforced.

The Examiner's Official Notice does not remedy the defects of Krishnan. Although the Official Notice indicates that it is known to decrease the interval. However, the Official Notice is devoid of mention of dividing the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority, analyzing the filter rules in groups separately, and reordering the filter rules in each group based upon the number of times the filter rules are enforced. Consequently, any combination of Krishnan and the Official Notice would still suffer from this defect. Stated differently, the combination of Krishnan and the Official Notice might reorder the filter rules based on frequency of matching packets as well as decreasing the intervals between times in which the filter rules are reordered. However, the combination would still fail to divide the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority, analyze the filter rules in groups separately, and reorder the filter rules in each group based upon the number of times the filter rules are enforced. Consequently, Krishnan in view of the Examiner's Official Notice fail to teach or suggest the method, system, and computer-readable medium recited in claims 6, 14, and 24. Accordingly, Applicant respectfully submits that claims 6, 14, and 24 are allowable over the cited references.

The Examiner rejected claim 17 under 35 U.S.C. § 103 as being unpatentable over Krishnan in view of Zenchelsky.

Applicant respectfully traverses the Examiner's rejection. Claim 17 depends upon independent claim 9. Consequently, the arguments herein with respect to Krishnan apply with full force to claim 17. In particular, Krishnan fails to teach or suggest dividing the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority.

Further, Krishnan fails to teach or suggest analyzing the filter rules in groups separately and reordering the filter rules in each group based upon the number of times the filter rules are enforced.

Zenchelsky fails to remedy the defect of Krishnan. Zenchelsky describes the use of a cache. However, Zenchelsky is devoid of mention of dividing the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority, analyzing the filter rules in groups separately, and reordering the filter rules in each group based upon the number of times the filter rules are enforced. Consequently, any combination of Krishnan and the Zenchelsky would still suffer from this defect. Stated differently, the combination of Krishnan and the Zenchelsky might reorder the filter rules based on frequency of matching packets as well as using the cache. However, the combination would still fail to divide the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority, analyze the filter rules in groups separately, and reorder the filter rules in each group based upon the number of times the filter rules are enforced. Consequently, Krishnan in view of the Zenchelsky fail to teach or suggest the method, system, and computer-readable medium recited in claim 17. Accordingly, Applicant respectfully submits that claim 17 is allowable over the cited references.

The Examiner also rejected claim 18 under 35 U.S.C. § 103 as being unpatentable over Krishnan in view of Lakshman.

Claim 18 recites a switch that is analogous to claims 1, 9, 19, and 27. Consequently, the arguments herein with respect to Krishnan apply with full force to claim 18. In particular, Krishnan fails to teach or suggest dividing the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority. Further, Krishnan fails to teach or suggest analyzing the filter rules in groups separately and reordering the filter rules in each group based upon the number of times the filter rules are enforced.

Lakshman fails to remedy the defect of Krishnan. Lakshman describes the use of a fabric including multiple processors. However, Lakshman is devoid of mention of dividing the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority, analyzing the filter rules in groups separately, and reordering the filter rules in each group based upon the number of times the filter rules are enforced. Consequently, any combination of Krishnan and the Lakshman would still suffer from this defect. Stated differently, the combination of Krishnan and the Lakshman might reorder the filter rules based on frequency of matching packets as well as using the fabric or processors. However, the combination would still fail to divide the filter rules into groups based on priority such that the filter rules in a particular group all have the same priority, analyze the filter rules in groups separately, and reorder the filter rules in each group based upon the number of times the filter rules are enforced. Consequently, Krishnan in view of the Lakshman fail to teach or suggest the method, system, and computer-readable medium recited in claim 18. Accordingly, Applicant respectfully submits that claim 18 is allowable over the cited references.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,

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December 9, 2004
Date